F-35 JOINT STRIKE FIGHTER

HELMET MOUNTED DISPLAY

What is it?

The F-35 helmet is essentially replacing the conventional heads-up display in the fighter cockpit. When flying an F-16, for example, there's a heads-up display in front of the pilot that provides all the primary flight reference and weapons information. With the Joint Strike Fighter helmet, pilots will have the capability to view critical information anywhere they look outside the aircraft, not just directly in front of them. A test was designed to study risk reduction while wearing a helmet mounted display.

How does it work?

With a traditional heads-up display, the pilot can reference flight and attack information in one spot, look around without any kind of obstruction, see what they want to see real world, and then come back to the heads-up display. With the helmet, the pilot has the information in his field of view at all times, unless it's turned off. The Joint Strike Fighter helmet system uses the normal heads-up display symbology when the pilot is looking straight ahead, but a tracker senses when the pilot looks away from the centerline and signals the display to turn off some information or turn on other information.

Overcoming challenges

Getting it right presented a special challenge. The Joint Strike Fighter simulators used weren't equipped for a helmet, and the actual Joint Strike Fighter helmet wasn't available, so the team had to integrate a commercially available helmet into the simulator.

The team integrated, in a very short time, the commercial helmet to look at helmet-mounted display risk-reduction projects. They didn't wait for a real flight-worthy helmet to come from Lockheed, and were able to conduct this risk-reduction research. This can possibly save the program money down the road by identifying some of the constraints of the system early on.

What's ahead?

With the helmet ready to go, the team can work out issues now by integrating the helmet into the representative cockpit.

For now, this is a risk-reduction test. The team is taking this early look at symbology to ensure they're heading in the right direction. Early testing of this capability to display all this information just inches from the pilots' eyes will pave the way for testing the production helmet inside the actual airframe.

Source: Christopher Ball / 95th Air Base Wing Public Affairs

ABOVE, CAPT. CHRIS JENKINS, PILOT VEHICLE INTERFACE LEAD FOR THE F-35 JOINT STRIKE FIGHTER PROGRAM INTEGRATED TEST FORCE, TRIES ON THE COMMERCIALLY AVAILABLE HELMET-MOUNTED DISPLAY HIS TEAM ADAPTED FOR USE WITH THE JOINT STRIKE FIGHTER SIMULATOR AT EDWARDS AFB, CALIF.